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## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

### Certificate of Facsimile Transmission under 37 CFR 1.8

In re Application No. 09/160,657  
Filed: September 25, 1998  
Inventor: Joseph W. Lyding et al  
For: Semiconductive Devices and  
Methods for Same

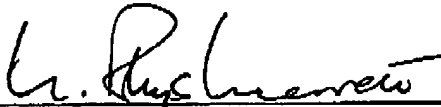
Group Art Unit: 2822  
Attorney Docket: UIL-10013C  
Examiner: VOCKRODT, Jeff B.

### Fax No: 703-872-9318

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- Response (4 pages).

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N. Rhys Merrett

June 4, 2003  
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**ART UNIT 2822**

**RE: APPLN. No. 09/160,657**

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Application No. 09/160,157  
Amendment Dated: June 4, 2003

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Group Art Unit 2822

Inventor(s): Joseph W. Lyding et al

Examiner: VOCKRODT, Jeff B.


For: SEMICONDUCTIVE DEVICES AND METHODS FOR SAME

Commissioner for Patents  
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**BOX RCE****RESPONSE UNDER 37 CFR 1.111****Remarks/Arguments** begin on page 2 of this paper.**FAX RECEIVED**

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*Application No. 09/160,157*  
*Amendment Dated: June 4, 2003*

**REMARKS/ARGUMENTS:**

Claims 40, 41, 47, 60, 61, 63-74, 76-79 and 81-84 are now pending in the application for consideration.

Consideration is requested of the response and amendment communicated to the USPTO on May 13, 2003, supplemented by the following remarks, as a substantive response to the Office Action mailed May 12, 2003. For convenience, the various references are identified by the abbreviated notations used in the Office Action mailed May 12, 2003. In general. The extensive analysis provided in the Office Action in relation to the grounds of rejection and in response to Applicants' previous arguments are appreciated. Applicants respectfully traverse the grounds of rejection and the Examiner's response to Applicants' previous arguments, as set forth in this Office Action.

**Rejection of claims 40-48, 60-65, and 75-78 as being unpatentable over Enomoto in view of Lisenker.**

In the May 12, 2003 Office Action, it is asserted "Lisenker and Enomoto are analogous art. Both references teach reducing interface states in semiconductor devices to increase device reliability and performance by way of passivation." With respect, such an assertion appears to be a hindsight rationalization based on the invention claimed in the present application, instead of a fair interpretation of the teachings or any motivation provided by the individual references. Enomoto is directed to use of hydrogen sintering to increase the yield of a semiconductor circuit, particularly a memory array, having redundant circuitry, by identifying and replacing defective circuitry after formation of the circuitry on an integrated circuit. Lisenker emphasizes deuterium annealing during process flow steps "in which a permanent oxide layer is being formed or treated." (Page 8, lines 29-37).

No analogy is seen that would have motivated a person of ordinary skill in the art to have departed from the well understood and practiced hydrogen annealing process utilized by Enomoto in memory array yield enhancement "after formation of the circuitry on the integrated circuit" (Enomoto, col. 3, lines 1-9) in favor of the academic proposal of Lisenker in the context of device processing prior to completion of a device to alleviate hot carrier effects that were not a significant concern in memory array operation. The Examiner's rationale is respectfully

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traversed as failing to present objective, fact based evidence of motivation to a person of ordinary skill in the art as asserted in the Office Action. Rather, the Examiner's contention appears to be based on hindsight driven, conclusory speculation.

**Rejection of claims 40-48, 60-65, and 75-81 as unpatentable over Okazaki in view of Mitani and Lisenker.**

In the Office Action mailed May 12, 2003 it is contended "Okazaki, Mitani, and Lisenker are analogous art because they are within the field of CMOS devices and relate to the problem of hot-carrier reliability." This contention is respectfully traversed. Mitani is directed to obtaining "... source/drain regions formed by depositing doped silicon in grooves on opposite sides of [a] gate electrode . . . " (claim 1) and to "... a new method of selectively depositing a silicon film without generating a difference in film thickness based on a difference in crystal face." (Col. 5, lines 62-65.) Mitani is not seen even to mention "hot carrier(s)" (Mitani does mention, in relation to formation of a metal silicide, "carrier generation recombination center (*sic*)" which is not pertinent - col. 26, lines 1-11). Thus, any contention that Mitani relates to the problem of "hot-carrier reliability" is believed to mischaracterize Mitani. A prior art reference must be considered as a whole and Mitani is seen clearly to be directed to a wholly different problem and solution from that with which the invention claimed in the present application is concerned. The Examiner relies on a single sentence, incidental to the thrust of Mitani's teaching, in a specification of over 25,000 words. The sentence reads: "[After forming source/drain electrodes] annealing is performed in a nitrogen atmosphere containing 10% of hydrogen at 450°C for 15 minutes, thereby completing a transistor." (Col 22, lines 55-61, emphasis added.) This stated purpose of Mitani's annealing is thus is not seen to be pertinent to the invention claimed in the present application, and no objective, factual *a priori* support for the Examiner's contention is provided in the Office Action. Rather, it appears this sentence has been arbitrarily selected, out of context, from Mitani on the basis of hindsight. It is believed Mitani considered as a whole is not analogous or otherwise pertinent to the invention claimed in the present application

From the above discussion, and that contained in the Response filed May 13, 2003, it is also believed clear that Lisenker and Mitani are not analogous art, and propose different solutions to different problems.

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That there is a general relationship between the fields of the prior art references to be combined, e.g. "they are in the field of CMOS devices" is insufficient to suggest the motivation; there must be fact based commonality between the references, each considered as a whole and not on the basis of some feature arbitrarily extracted on the basis of hindsight. In terms of problem and solution. It is respectfully urged the grounds of rejection as stated in the Office Action fall short of this standard.

**CONCLUSION:**

It is believed the above discussion has demonstrated the Examiner has failed to meet the required burden of establishing a *prima facie* case of obviousness derived from the teachings of the prior art considered as of the time of the invention, but instead has relied on speculative, conclusory opinions based on hindsight gained from Applicants' invention and lacking factual substantiation in the prior art. These conclusory opinions are, at least in part, based on arbitrary extraction of isolated portions of references omitting consideration of the teachings of each reference considered as a whole and in the context of its own disclosure.

Favorable consideration in the light of this response in conjunction with the amendment and response filed May 13, 2003 is respectfully requested.

If after consideration, the Examiner believes that any outstanding matters remain, discussion of which might expedite further prosecution, a telephone call to the undersigned attorney at 972-862-7428 will be appreciated.

Date: June 4, 2003  
N. Rhys Merrett  
6505 W. Park, Ste 306 #354  
Plano, TX 75093  
Tel: (972) 862-7428  
Fax: (972) 862-7438

Respectfully submitted,



N. Rhys Merrett  
Registration No. 27250

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